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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,669	07/30/2003	Akira Sekiguchi	402728	6426
23548	7590	06/03/2005		
LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			EXAMINER SEVER, ANDREW T	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/629,669

Applicant(s)

SEKIGUCHI ET AL.

Examiner

Andrew T. Sever

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/5/2005 has been entered.

Claim Objections

2. Claims 1-8 are objected to because of the following informalities: the amended claim language of claim 1 conflicts with the remaining original language of claim 1. Appropriate correction is required.

In the second paragraph of claim 1 applicant claims that the reflector is parabolic (i.e. it reflects the light parallel to the optical axis and only a parabolic paraboloid does this) while in the new claim language applicant appears to be claiming the light flux is not parallel, but rather concentrated down to a focus at some point which based on figure 14 would be after the lens. A parabolic reflector with the object point where the claim claims it is positioned cannot do this, a parabolic reflector only reflects the light in a parallel fashion. Accordingly the claim is indefinite since it claims a first kind of mirror that cannot do what the second limitation claims. Appropriate correction is required.

Claims 2-8 are dependent on claim 1 and accordingly contain the objectionable limitations of claim 1 and are objected to for that reason.

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The below prior art rejection is based on taking standard approximations of the light path as are used by those of ordinary skill in the art for designing optical systems, of which a parabolic reflector meets the claimed limitations given certain well known measurement limitations relied upon by those of ordinary skill in the art.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1-4, 6, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama (US 6,688,756.)

Akiyama teaches in figures 2, 3, and 11 a lamp (150A) comprising:

An illuminant section having an illuminant for radiating light (part 22 of figure 11), the light having a size determined by an arc length, wherein the arc length has a direction aligned with an optical axis of the lamp;

A lamp reflector (24) having a parabolic focus located at a center point of the illuminant, in the illuminant section, for reflecting, as a parallel light flux, parallel to the optical axis, light radiated from the center point of the illuminant section, by a paraboloid of revolution surface developed around the optical axis and directed toward a forward

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direction of the optical axis (see column 8 lines 1-45 which explains that the reflector in one embodiment is parabolic (where $K=1$) which inherently makes the light parallel light flux (all parabolic reflectors make the light a parallel light flux)); and

A lamp front glass (30 A, it should be noted that in column 8 lines 1-45 in the case where the reflector is parabolic, Akiyama still teaches that the lamp front glass is useful for high performance, see lines 27-31) perpendicular to the optical axis and having an incident surface (30 Ai) and an outgoing surface (30 Ao), for receiving the parallel light flux from the lamp reflector through the incident surface and outputting the parallel light flux through the outgoing surface, wherein

The paraboloid of revolution surface of the lamp reflector is a deformation of an aspherical reflection surface rotationally symmetrical with respect to the optical axis, the aspherical reflection surface including a plurality of infinitesimal mirrors oriented at respective radiation angles with respect to the light from the illuminant section (a paraboloid of revolution lamp i.e. a parabolic reflector, is inherently an aspherical reflection surface as since it is a paraboloid and not a sphere it is aspherical, also consult an optics book where it will describe the three classes of aspheric reflectors: ellipsoidal, parabolic, and hyperbolic as the term aspherical is used in the optics arts concerning mirrors),

Each infinitesimal mirror arranged on the aspherical reflection surface to reflect a light ray, within an effective reflective area of the lamp reflector and radiate from the illuminant section, in a corresponding constant infinitesimal angle along the forward direction of the optical axis so that the light rays reflected by the corresponding

infinitesimal mirror intersect the lamp front glass along a corresponding constant infinitesimal length on a light perpendicular to the optical axis, and all of the light rays radiated from the center point of the illuminant section and reflected by the lamp reflector propagate as the parallel light flux at the lamp front glass.

The infinitesimal length divided by the infinitesimal angle is constant

(The above limitation describes the mathematical and corresponding ray diagram of at least parabolic mirrors with regards to at least a para-axial region and over small angles. Which are well known limitations used by those of ordinary skill in the art at the time the invention was made to design mirrors (as well as lenses) in the regions of the mirror, which are typically used in optical applications.

See any Calculus text on surfaces of revolution as well as an optics book with regards to first order approximations. Also within an infinitesimal sized region a parabolic mirror can be approximated as a plane mirror (infinitesimal plane mirrors.)

At least one of the incident surfaces and the outgoing surfaces of the lamp front glass is a deformation of an aspherical lens surface rotationally symmetrical with respect to the optical axis (see column 5 lines 65 through column 6 lines 44 for a discussion on how the lens 30 is modified), and

The light is collimated into the parallel light flux traveling parallel to the optical axis from the illuminant by applying corresponding power to control distribution of a

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divergent angle at the outgoing plane of the lamp front glass (as explained above the light is inherently made parallel by a parabolic reflector (this is what parabolic reflectors do), see figure 2).

With regards to applicant's claims 2 and 3:

See figure 2 where it is clear that the area where there is no outgoing light is made less by the combination of lens and reflector.

With regards to applicant's claim 4:

See figure 11, which shows a polarization conversion device (62, 64, and 66).

With regards to applicant's claim 6:

Lens 70 condenses the light out the light valve LA, which then passes the light through a projection optical system and onto a screen as shown in figure 14.

With regards to applicant's claim 8:

Applicant is merely claiming an explanation of calculus, specifically that of a surface of revolution (A surface of revolution can be considered the sum over infinity of a infinite number of infinitesimal mirrors which are infinitesimally offset from each other according to some formula for determining that offset).

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5. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama as applied to claims 1-4, 6, and 8 above, and further in view of Karasawa et al. (US 6,491,396.)

As described in more detail above Akiyama teaches an image display device comprising in part a lamp comprising among other things an illuminant, a parabolic reflector, and a lamp front glass. Akiyama however does not teach a rod integrator for receiving light from a condenser lens and outputting the flux of the light from its outgoing surface.

Karasawa teaches in column 10 lines 26-42 that with a parabolic reflector, a condenser lens is used in combination with a rod integrator to produce a plurality of light source images at the imaging device. Karasawa teaches that this is useful in column 2 lines 41-51, since if such a device is not present colors will bleed onto adjacent pixels, resulting in a lower quality image. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the rod integrator as well as condenser lens group in the display device, which has a condensing optical system, and lamp as taught by Akiyama.

With regards to applicant's claim 7:

See figure 1 of Karasawa for example (relay optical system (30) modulator (1000) projection lens (300), and screen (2000).)

Response to Arguments

6. Applicant's arguments filed 5/5/2005 have been fully considered but they are not persuasive:

Applicant attempts to argue that the amendments to the claim reflect a novel shaped reflector. While the disclosed reflector may be novel, applicant's claims at least in as much as they are consistent and within certain well known limitations that those skilled in the optical arts generally restrict their measurements and calculations too, only claim a parabolic reflector which is well known and its specific well known properties in the regions typically looked at (Specifically along the axis of the mirror and for small angles). Since applicant's claim limitations are inconsistent it is believed that making such approximations are appropriate. Accordingly Akiyama or Akiyama in view of Karasawa as much as they are consistent meets applicant's claims.

All claims have been rejected under 35 USC 103 since it appears that applicant is claiming something other than a parabolic mirror and the parabolic and ellipsoidal mirrors of Akiyama only meet the claims under 35 USC 103, however upon amendment and/or argument, if it is found applicant is claiming a mirror that Akiyama specifically teaches or the above assumptions/limitations are being also assumed in the claim language as being inherent, then applicant should anticipate the appropriate rejection based on Akiyama being changed to a 35 USC 102(e) rejection and made final.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 2005/0078483 to Bernard et al. teaches a reflector that is made up of small planar mirrors to obtain a desired optical affect. (See figures 1 and 2 for example.)

US 6,840,633 to Davis et al. teaches in figures 1-3 a reflector with a lamp front glass.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS


JUDY NGUYEN
SUPERVISORY PATENT EXAMINER